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139 Jun 4 (2) Sourced

Central Intelligence Agency

Washington, D.C. 20505

DIRECTORATE OF INTELLIGENCE

1 May 1985

Developments in China's Energy Sector [redacted] 25X1

Summary

China's energy output grew significantly last year, but with the economy growing even faster, China's chronic shortage of energy shows no sign of abating. Coal and oil output both grew by 8 percent in 1984, and electricity output was up 6.6 percent. China's leadership is well aware of the country's energy problems and has adopted a number of measures to address them. Beijing has taken the first crucial steps of raising coal and electricity prices to encourage the more efficient use and transportation of energy. Foreign involvement in China's onshore oil sector has grown rapidly as US seismic teams have begun surveying China's major fields and 10 provinces in South China were recently opened to foreign exploration. Strong pressure from Beijing to increase oil production may hasten the depletion of reserves at some older fields such as Daqing, but new finds at other onshore fields have the potential for making up the difference. The offshore oil exploration program continues to have disappointing results. [redacted] 25X1

China's Energy Sector

China's energy production has grown impressively during the past year due, in large part, to the implementation of economic

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This memorandum was prepared by [redacted] the Office of East Asian Analysis in response to a request from the Department of Treasury. Questions and comments are welcome and may be addressed to Chief, China Division, at [redacted] 25X1 25X1

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reforms and new discoveries of oil onshore (see table). However, chronic energy shortages and serious long-term supply and transportation problems will probably continue to make the energy sector a key constraint on economic growth. The Chinese leadership recognizes these problems, and has made increasing China's energy production of one of its highest priorities. China's coal and oil output grew by 8 percent in 1984, and electricity output was up 6.6 percent. Yet the energy sector could not keep pace with last year's 14 percent growth in industrial output, even with improvements in industrial efficiency.[1] [redacted] 25X1

Beijing has shown its strong concern for developing additional energy supplies by initiating a number of new and potentially controversial policies. The average price of coal has been increased significantly in recent months to encourage its more efficient use and transportation. Foreign oil firms were recently invited to search for oil in 10 provinces of South China, and foreign seismic crews are helping to search for additional oil at several of China's largest fields. Beijing is backing this effort to produce more energy with a large investment in capital construction. Forty-six of China's 123 key construction projects are in the energy field. In addition, the World Bank is loaning China US $240 million for two coal projects in Shanxi province and US $263 million for petroleum projects at Daqing and Zhongyuan. [redacted] 25X1

China's Energy Output

	1983	1984	Percentage Change over '83	First Q '85	'85 Planned
Coal (MMT)	715	772	8	190	790
Crude Oil (Million barrels per day)	2.12	2.28	8	2.45	2.48
Natural Gas (billion cubic meters)	12.21	12.4	1.6	NA	12.5
Electricity billion (KWH)	351.4	374.6	6.6	95.7	396

This table is Unclassified.

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[1] Coal provides about 70 percent of China's energy and oil provides another 20 percent. [redacted] 25X1

Oil

China's increase in crude oil production during the past year came as a result of new finds at existing onshore fields, improved recovery techniques, and greater productivity. According to Chinese press reports, 5.1 billion barrels of new oil deposits were discovered in 1984, surpassing the 1983 figure of 3.7 billion barrels. The Shengli oilfield in Shandong province, China's second largest field, has made particularly impressive gains. The 650 new wells sunk last year boosted Shengli's production to 460,000 barrels per day, a 25 percent increase over 1983. Similar gains were made at the smaller fields of Liaohe, where production was up 24 percent to 153,000 barrels per day, and Zhongyuan, where production was up 32 percent to 80,000 barrels per day. [redacted] 25X1

Daqing, in China's far northeast, remains China's largest crude oil producer, accounting for about half of China's total output, 1.07 million barrels per day in 1984. Daqing's production grew by only 2.3 percent last year because of the declining output of its older wells. The inevitable overall decline in production at Daqing has been one of the primary reasons Beijing has expanded its search for new sources of oil. This decline may have been put off another few years by the recently announced discovery of 730 million barrels of additional reserves at Daqing. However, a US geophysicist working at Daqing believes that many of Daqing's "new wells" are exploiting old reservoirs which will lead to faster depletion rates. Thirty-one US seismic survey specialists also began work in Daqing in December under a two-year contract. These specialists are assisting the Chinese in determining whether there are additional sources of oil in the field. Beijing has also imported a variety of modern oil drilling equipment for use at Daqing and other key fields. [redacted] 25X1

Beijing's hopes of finding large quantities of oil offshore have been disappointed. To date, the amount of oil discovered has not been large enough to justify commercial production. Thirty-eight oil companies, including 15 from the United States, have applied to participate in Beijing's second round of bidding for offshore drilling rights which will take place later this year. Nevertheless, if few new finds are made in the next year or so some firms will probably pull out. [redacted] 25X1

In March the Chinese announced the opening of 1.83 million square kilometers in 10 southern provinces to oil exploration by foreign firms. This unprecedented action almost certainly was made as a result of the offshore program's disappointing results. The areas Beijing is opening have few existing fields and are largely unexplored. Beijing showed its eagerness to begin searching for oil in South China by privately inviting in foreign oil firms prior to the announcement, by eliminating the bidding process, and calling for direct negotiations. [redacted] 25X1

Coal

The growth in China's coal output has primarily been a result of reforms in wages, prices, and mine ownership. Beijing's decision in 1983 to allow individuals and collectives to mine coal has led to a "coal rush" in China. More than one million peasants are mining in 50,000 small pits across the country. Last year they produced 203 million tons of coal, more than a quarter of China's total output and a 20 percent increase over 1983. Wage reforms such as the introduction of piece wages and special bonuses for more difficult work have apparently improved productivity. However, the rush to produce more coal has led to an increase in accidents and a national meeting on the subject in March called for tying wages to safety. [redacted] 25X1

The low state price for coal remains a serious problem for the industry, but Beijing has taken the first step at reform by allowing above quota coal production to be sold at negotiated market prices. The average price of coal in China has risen dramatically under this two-tiered system. According to a source of the US Embassy in Beijing, the negotiated market price for coal in some parts of China has gone as high as 180 yuan ($64US) per ton, 8 to 9 times the state price. The Embassy estimates that about a third of all coal transactions in Guangdong province are made at negotiated prices. The above quota sales have improved the supply of coal especially in Shanghai and South China where coal has traditionally been in short supply. According to one account in the Chinese press, coal stocks in Jiangsu, Hubei and Guangdong provinces were up 20 to 40 percent this winter as a result of negotiated price deals. [redacted] 25X1

The primary constraint to coal providing more of China's energy is the country's transportation bottleneck. Inadequate ports, rail lines, and roads have made it impossible for many areas to ship out much of their coal output. In Shanxi province, China's largest coal producer, stockpiles of coal at the pit head swelled to 30 million tons last year, 16 percent of production. A senior Shanxi official recently even invited coal-deficient provinces to invest in improving Shanxi's roads and promised to pay them back in coal. Nationally, the coal ministry plans to spend 2.2 billion yuan (US $786 million) over the next five years to build more railways and wharves to improve coal transportation. Beijing also recently raised short-haul railway freight charges which may help to relieve the coal backlog. [redacted] 25X1

Electric Power

Chinese officials have repeatedly cited electric power shortages as the leading constraint on China's economic growth and development. Beijing realizes that electricity consumption in the long-term must increase at close to if not faster than the overall economic growth rates. Thus, last year's 6.6 percent increase in electrical output which fell well behind China's 14

percent growth in industrial output, only aggravated China's serious power shortage. Power outages and brownouts are frequent throughout China. [ ] 25X1

Beijing's recent decision to increase some electricity prices is aimed at encouraging more efficient power use and larger investments in new facilities. The price reforms will include higher charges for electricity produced from fuels purchased at above state prices and surcharges for use during peak periods and discounts for off-peak use. Prices for electricity produced at stations built by foreign investment or joint ventures will be pegged high enough to allow for the repayment of real production costs and a reasonable profit.[2] [ ] 25X1

China has developed only a tiny share of what is generally accepted as the world's greatest hydroelectric power potential. Hydropower currently accounts for less than a quarter of China's energy output. Beijing has ambitious plans to increase hydropower capacity at an annual rate of between 5 and 6 percent over the next 15 years. Twenty-seven large and medium-sized hydropower plants with designed capacity totaling more than 12,000 MW are under construction, most have only recently been started and will not produce electricity until the late 1980s and early 1990s. [ ] 25X1

Beijing has also begun developing a nuclear power industry, but the long lead time involved means that nuclear power will not begin to come on line until the 1990s. In January China signed a $3.5 billion agreement with Hong Kong interests, to build an 1800-megawatt nuclear power plant in Guangdong province which will share power with nearby Hong Kong. A 2000-megawatt facility is also being planned for construction near Shanghai. Beijing is currently negotiating with such suppliers as Framatome and Kraftwerk Union, but continues to state its preference for a US supplier if US nonproliferation concerns can be worked out. Beijing signed nuclear cooperation agreements in April with Argentina and Belgium. It also has agreements with Brazil, Italy, and West Germany. An agreement with Japan has been stalled over the question of facility inspections. China joined the IAEA in 1983 and has shown a willingness to abide by IAEA safeguards. We believe this will broaden its access to Western nuclear equipment. [ ] 25X1

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[2] At present, the Daya Bay nuclear project, to be built near Hong Kong, is China's only energy-related foreign investment where such prices might apply. However, additional projects are under negotiation. [ ] 25X1

SUBJECT: Developments in China's Energy Sector

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